

Incomplete Dominance



Up Until Now

- One gene has expressed itself at the expense of the other gene (the dominant gene has won)
- What about shades or spots?
- A white rose crossed with a red rose produces a pink rose.
- Pink is a mix of red and white. So clearly one gene does not win over the other one but rather they share power.
- This is called ***Incomplete Dominance***.

- When two genes share power a new phenotype is produced (Ex. a pink rose).
- There are two types of incomplete dominance:

dominance

 1. Intermediate Inheritance
 2. Codominance

Intermediate Dominance

- This is where the two genes share power.
 - The new phenotype is a blending of the traits and is heterozygous.
- * Ex. Cross a red rose and a white rose together.
What do the offspring plants look like?
Red is R, White is r,
Parents: Red rose genotype = RR
White rose genotype = rr

	r	r
R	<u>Rr</u>	<u>Rr</u>
R	<u>Rr</u>	<u>Rr</u>

This cross produces all pink roses.
Pink roses have a genotype of Rr (heterozygous)

- * What offspring will result from a cross between a pink rose and a red rose?

Rr RR
RR RR
Rr Rr

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- A pink cow?
- In the cow world, the word "roan" is used to describe a cow or a bull that has white hair mixed with red hair. There is no blending of colour and the genes equally win.
- This is called co-dominance.

Ex. Cross a roan cow with a roan bull

B = white, b = red

$Bb \times Bb$

Roan is the heterozygous condition = Bb

White cow = BB, red cow = bb



	B	b
B	BB	Bb
b	Bb	bb

This cross produces:

1 white ~~cow~~ (BB)

2 roan ~~cows~~ (Bb)

1 red ~~cow~~ (bb)

What offspring would result from a cross between a white cow and roan bull?

	B	b
B	BB	Bb
B	BB	Bb

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Incomplete Dominance

- a) Birds can be blue, white, or white with blue-tipped feathers.
- b) Mice can be white, grey, or black.
- c) A person can have curly hair, spiked hair, or a mix of both curly and spiked.
- d) A plant can be tall, medium, or short.
- e) A snake can be spotted, black, or white.

Which of the letters represent codominant traits and which are intermediate inheritance?

1. Co-dominant _____

2. Intermediate dominance _____

Snapdragon flowers show incomplete dominance. Pink flowers are the heterozygous condition. Red and white flowers are the other colours.

What is the result of crossing a pink-flowered snapdragon and a red-coloured snapdragon?

